Multidrug resistance was defined as being intermediate or resistant to at least 3 of these 6 drugs: amikacin, gentamicin, ciprofloxacin, piperacillin, ceftazidime, and imipenem.
Results: Forty-eight episodes of bloodstream infections were identified in 30 patients (5 women; mean age 28.5 years). Gram-negative isolates were *Pseudomonas aeruginosa* in 12 (25%), *Enterobacter cloacae* in 4 (8.3%), *Escherichia coli* in 2 (4.2%), and *Acinetobacter spp* in 2 (4.2%) of the episodes. There were more primary bloodstream infections in the control group, whereas secondary bloodstream infections from wound infections were more common in patients in the multidrug-resistant group. Regarding prior antibiotic use, aminoglycoside use was significantly higher in patients in the multidrug-resistant group ($p<0.001$). See Table 1.
Conclusion: Multidrug-resistant strains of bacteria are being increasingly reported. In these cases, the choice of therapy often becomes limited. Several factors suggest that the emergence and spread of multidrug-resistant non-fermenting bacteria is related to the overuse of antimicrobial agents, although the degree of risk appears to differ with different agents. A strong association between use and resistance has been documented for carbapenems. In this study, previous use of aminoglycosides was found to be statistically significant for MDR strains.

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Colistin: An Old Drug for Difficult-to-treat Burn Infections Caused by *Pseudomonas Aeruginosa*

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Introduction: Colistin was re-introduced into clinical practice during the last years for the treatment of nosocomial infections caused by multidrug-resistant Gram-negative bacteria. The aim of this study is to evaluate the efficacy and side effects of colistin in the burn infections caused by pan-resistant *Pseudomonas aeruginosa* strains.
Materials and Methods: Medical records of seven burn patients who received colistin were evaluated retrospectively. Underlying diseases, site of infection, antibacterial susceptibility pattern of the causative agent, clinical progress, laboratory findings especially renal function tests, dose of colistin and side effects of colistin were the data collected. Deterioration of renal function was defined as an increase of more than 50% of the baseline to a value higher than 1.3mg/dL or as a need for renal replacement therapy.
Results: All seven burn patients had burn wounds infected with pan-resistant *P. aeruginosa* and two of these also had bacteremia. Two burn patients died during colistin treatment; one was due to other causes except infection (extensive burn), and the other had febrile disease probably associated with *P. aeruginosa*. Adult patients who had normal renal function tests received a dose range of 1-3 million units q8h. Patients received colistin for 4 to 21 days. Cultures from the infected sites became sterile in the range of 2 days-13 days. Neurotoxicity, nephrotoxicity, skin rash or gastrointestinal disturbances was not observed in any of these patients.
Conclusion: Limited data obtained from seven patients show that intravenous colistin constitutes a relatively safe and effective therapeutic intervention in cases of severe burn infections caused by multidrug-resistant Gram-negative bacteria.

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Fungal Infections in Burn Patients

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Introduction: Fungal infections particularly bloodstream infections due to *Candida spp*. cause high morbidity and mortality in healthcare settings. Burn patients are vulnerable to fungal infections because they generally receive broad spectrum antibacterial therapy and total parenteral nutrition.
Objective: The objective of this study is to determine the incidence of fungal infections in burn patients.
Materials and Methods: Medical records of 290 burn patients hospitalized between the years 2003 and 2007 at Baskent University Burn Unit were evaluated retrospectively. Infections were defined according to the criteria described in Taneja's article. Two hundred and ninety burn patients were followed during the five-year period; the ages of the patients were within the range of 2 months and 90 years and 88 (30%) were female.
Results: Twenty-five fungal infection episodes caused by *Candida spp*. were diagnosed in 20 patients during the five-year period. Fourteen of these episodes were bloodstream infections, six were urinary tract infections and five were burn wound infections. Nine of the fourteen (64%) candidemia episodes were due to *Candida albicans* and the remaining five (36%) were due to non-albicans *Candida spp*.
Conclusion: Management of fungal infections in burn patients should deserve more attention because of high mortality rates. Appropriate antifungal therapy is of great importance. One third of fungal causes of bloodstream infections in this study are non-albicans *Candida* strains. The various antifungal susceptibility profiles of non-albicans *Candida* strains mandates the documentation of antifungal susceptibility results.

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Caspofungin for Prophylaxis of Intraabdominal Candidiasis in High-Risk Surgical Patients: a Pilot Study

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Background: We have previously shown that 30-40% of surgical patients with recurrent gastrointestinal perforation/anastomotic leakage, or acute necrotizing pancreatitis develop intraabdominal candidiasis (IC) (Lancet 1989, 2:1437). These patients benefit of fluconazole prophylaxis (Px) (Crit Care Med 1999, 27:1066). A corrected *Candida* colonization index (CCI) $\geq$0.4 is a major risk factor for IC (Ann Surg 1994, 220:751). CSP, a new therapy for IC including azole-resistant *Candida spp.*, may be used for Px of IC.
Objective: To conduct a non-comparative pilot study on the efficacy and safety of caspofungin (CSP) for Px of IC in high-risk surgical patients.
Methods: Inclusion criteria: age $>$18, surgery for recurrent gastrointestinal perforations/anastomotic leakage or acute pancreatitis. Exclusion criteria: documented IC, fluconazole Px. CSP Px (70 mg, then 50 mg/day) was given until resolution of the surgical condition. *Candida* colonization was monitored 1x weekly at $\geq$3 sites and the CCI calculated. Success was defined by the absence of IC during CSP Px. Occurrence of CSP-related SAE was recorded.
Results: Nineteen patients were enrolled: 16/3 males/females, median age 69 (range 40-84). Underlying surgical conditions were: recurrent gastrointestinal perforation/anastomotic leakage (n),

acute pancreatitis (n=3). At study entry, 14 (74%) patients were in the ICU (median Simplified Acute Physiology Score II 45, range 31-65), 19 (100%) received antibacterial therapy and 17 (89%) were colonized with *Candida* (*C. albicans* in 69%; CCI $\geq$0.4 in 1/17 case, 5%). Median duration of CSP Px was 16 days (range 4-46). During CSP Px, 17 (89%) patients remained colonized (*C. albicans* in 68%), but 0/17 developed a CCI $\geq$0.4. CSP was successful for prevention of IC in 18 (95%) patients. Among 5 deaths, none was attributed to IC. No severe CSP-related SAE requiring discontinuation of Px occurred.
Discussion: The results of this pilot study suggest that caspofungin is efficacious and safe for prophylaxis of intra-abdominal candidiasis in high-risk surgical patients.

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Cultures of Venous Catheter Tips (VCT) from Intensive Care Unit Patients

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Objectives: The aim of this study was to evaluate the incidence of microbial pathogens isolated from cultures of venous catheter tips (VCT) and determine their susceptibility patterns to antimicrobial agents from patients hospitalized in the intensive care unit (ICU).
Methods: During a four year period (2003-2007) 925 VCT were cultured from patients hospitalized in the ICU of our hospital. Patients between 18-60 years aged and were hospitalized for more than 48 hours. Specimens were cultured and evaluated according to the semi-quantitative method (MAKI' S) for aerobic microorganisms and fungi. Antibiotic susceptibility testing was performed by the agar disk diffusion method according to CLSI guidelines.
Results: From 925 VCT cultures 158 (17%) were positive. Of them 23% grew Acinetobacter baumanii, 22% *Pseudomonas aeruginosa*, 26% *Enterobacteriaceae*, 6% *Enterococcus spp.*, 3% *Staphylococcus aureus*, 16% *Staphylococcus* coagulase-negative and 3% *Candida spp*. 74% of *A. baumanii* and *Ps. aeruginosa* strains were resistant to Carbapanems, 69% to Gentamycin and 81% to Amikacin. Twenty-six percent of *Enterobacteriaceae* strains were resistant to Carbapenems, 24% to Gentamycin and 48% to Amikacin. From *S. aureus* and *Staphylococcus* coagulase-negative isolated strains 60% and 66% respectively were resistant to Methicilin. 22% of *Enterococcus spp.* were resistant to Vancomycin and Teicoplanin (van A).
Conclusions: *A. baumanii* and *Ps. aeruginosa* were the most common isolated pathogens followed by *Staphylococci* coagulase-negative. An elevated percentage of multiresistant strains was observed. The knowledge of the resident microbial flora and their antimicrobial susceptibility profiles is necessary in order to formulate a rational policy in patients with catheter devices.

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Susceptibility Rates and High Level Aminoglycoside Resistance of *Enterococcus* Species Isolated from Intensive Care Unit Clinical Specimens

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Background: *Enterococci* may not be the main pathogens associated with Intensive Care Unit (ICU) patients infections but their increasing resistance rates to many commonly administrated antibiotics often leads to the need of using a combination of antimicrobial agents when dealing with these infections. Even though aminoglycosides used alone have very low efficiency against these microorganisms, their combination with an antibiotic that targets bacterial cell wall has proved to be successful. Testing for high level aminoglycoside resistance (HLAR) is a laboratory means of evaluating the efficiency of such a combination.
Objectives: To assess antimicrobial susceptibility rates and HLAR of *Enterococcus* strains isolated from ICU patients during one year period of time.
Methods: Between 01-01-2007 and 31-12-2007, 50 *Enterococcus* strains were isolated from different ICU patients' samples (mainly bronchial aspirates, urine, blood and wounds). Identification of bacteria was made by standard laboratory proceedings and susceptibility testing to antimicrobial agents was performed with the disk diffusion test (Kirby-Bauer method) along with the miniAPI system. HLAR test was performed with the disk diffusion test according to the CLSI guidelines with the use of 120 microgram Gentamicin and 300 microgram Streptomycin disks.
Results: *Enterococcus faecium* was the most frequent *enterococcal* isolate (40%), followed by *Ent. faecalis* (32%), *Ent. casseliflavus* (12%), *Ent. gallinarum* (12%) and *Ent. durans* (4%). All strains were susceptible to vancomycin and teicoplanin while susceptibility rates for quinupristin-dalfopristin were for *Ent. faecium* 40%, *Ent. faecalis* 0%, *Ent. casseliflavus* 0%, *Ent. gallinarum* 66.6% and Ent. durans 0%. HLAR is shown in the following table.

	Gentamicin 120μg (R %)	Streptomycin 300μg (R %)
Ent. faecium	60	90
Ent. faecalis	50	50
Ent. casseliflavus	33.3	33.3
Ent. gallinarum	0	33.3
Ent. durans	100	100

Conclusions: Glycopeptides remain highly efficient while streptogramins showed lower efficiency. *Enterococci* species isolated from ICU patients had high HLAR rates especially in the case of *Ent. faecium*, *Ent. faecalis* and *Ent. durans*. Since high level resistance to aminoglycosides means that these antibiotics will not be synergistic with cell-wall-active agents, testing for HLAR is important for the proper therapeutical approach of these patients.

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Carbapenems and Aminoglycosides Susceptibility Rates of Frequently Isolated Gram-negative Bacteria from ICU Patients

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Background: Gram-negative bacteria are the main pathogens associated with Intensive Care Unit (ICU) patients infections and their increasing resistance rates to multiple antimicrobial agents contribute to high morbidity and mortality rates.
Objectives: To assess susceptibility rates to carbapenems and aminoglycosides of the most frequently isolated Gram-negative bacteria from ICU clinical specimens.
Methods: During one year period of time (1/1/2007 till 31/12/2007) 409 Gram-negative bacterial strains were recovered from different samples obtained from ICU patients (including bronchial aspirates, urine, central venous catheters, blood and